PROCESSING AND CHARACTERIZATION OF BIS (ETHYLENEDIOXY) TETRATHIAFULVALENE /IODINE DOPED POLYCARBONATE FILMS.

Parul Jain,Dr.Julie Harmon*,Dr.Alcantar Norma*, Department of chemistry, University of South Florida, 4202 E. Fowler Ave CHE205, Tampa, FL 33620.

This study focuses on the fabrication of polycarbonate films doped with bis (ethylenedioxy)tetrathiafulvalene (BEDO-TTF) and complexed with iodine. These conductive polymer films were analyzed via differential scanning calorimetry (DSC), dielectric analysis (DEA),UV-Vis spectrometry (UV-Vis) and optical microscopy. Thermal studies showed a decrease in glass transition temperature as the concentration of the soluble dye, BEDO-TTF, increased. Optical images depicted the development of conductive network with respect to optimum iodine exposure time and dye concentration. Dielectric analysis (DEA) in the frequency range 1Hz to 100KHz revealed the alpha, secondary and conductivity relaxations. These films showed a clear dependency of the bis(ethylenedioxy)tetrathiafulvalene content on conductivity and structural relaxations.